

REMARKS

Claims 1 to 7 continue to be in the case.

New claims 8 to 21 are being introduced.

New claim 8 is based on the language of claims 1 and 5.

New claim 9 is based on the language of claim 2.

New claim 10 is based on the language of claim 4.

New claim 11 is based on the language of claim 5.

New claim 12 is based on the language of claim 6.

New claim 13 is based on the language of claims 1, 5, and 8.

New claim 14 is based on the language of claims 2 and 9.

New claim 15 is based on the language of claims 4 and 10 and on the description, page 7, lines 29 to 32.

New claim 16 is based on the language of claims 5 and 11.

New claim 17 is based on the language of claims 6, 12, and 13.

New claim 18 is based on the language of the specification, page 7, lines 17 through 23.

New claim 19 is based on the language of the specification, page 7, line 35 to page 8, line 4.

New claim 20 is based on Figures 3 and 4.

New claim 21 is based on Figures 3 and 4.

The Office Action refers to Claim Rejections - 35 USC § 102.

Claims 1,3 and 5 stand rejected under 35 U.S.C. 102(b) as being anticipated by Von Weissenfluh et al (USPN 5,626,475). Von Weissenfluh et al discloses a dental matrix retainer used as an aid when filling two- surface cavities in the molars, with a matrix holder (1) and a device for tensioning a matrix band placed in the form of a loop around the tooth which is to be treated, the matrix holder (1) being composed of a housing (6) with a circular opening (through which spindle 7 is received), and of a spindle-like inner body (7) which can turn in this opening and which is provided with a gap (7b), said gap (7b) being able to be aligned with a slit (6b) in the wall of the housing (6) such that the superposed ends of the matrix can be inserted into this slit (6b) and into the gap (7b) aligned therewith and can be tensioned on the tooth by turning the inner body (7), characterized in that a toothed wheel (7c) is provided on the upper end of the spindle (7) protruding from the circular opening of the housing (6), said toothed wheel (7c) being able to be engaged with a drive device (2) which has a laterally outwardly extended drive shaft (10).

Claim 1 was amended by inserting language specifying that “said toothed wheel (13, 27) being able to be engaged immediately and to contact directly with a drive device (4)”. The teaching of the Von Weissenfluh et al. reference differs from this requirement. According to the reference Von

Weissenfluh et al., column 4, lines 20 to 28, a conical toothed wheel 8a is interposed between a pinion of shaft (9) and a toothed wheel (7c) of tension matrix (1). Thus the pinion of shaft (9) and the toothed wheel (7c) of tension matrix (1) do not engage immediately and contact directly in contrast to the requirement of claim 1 of the present application.

It is respectfully submitted that claim 1 defines the present invention patentably over the reference Von Weissenfluh et al.

According to the present application there is furnished a direct connection between drive device (4) and matrix holder (3), which produced simpler and more reliable by sliding the support fork (21) under the overhanging edge (7) at the housing (5) by a single motion, wherein the direct, that is immediate engagement of the drive pinion (17) of the drive device (4) with the crown wheel (13) of the spindle like inner body (9) occurs automatically. The disengagement of the drive device (4) from the matrix holder (3) after a tensioning of the matrix band (2) occurs in the same simple way by pulling out the support fork (21) again from the housing (5) with a single motion in contrast to the present invention, the required shifting and pulling motions with the thumb at the ratchet (12) are not comfortable and require the joints in the hand unnecessarily.

To claim 3, the drive device (2) is composed of the drive shaft (10) and of the drive pinion (9) arranged at one end thereof

Claim 3 is believed to be patentable over the Von Weissenfluh et al. reference based on its dependence on claim 1.

Further to claim 5, the drive shaft (10) can be turned inside a tubular sleeve (19) with the aid of a rotary knob (16) provided at its end remote from the drive pinion (9), from which sleeve (19) a support fork (4,5) protrudes forward underneath the drive pinion (9) and can slide under an edge (above and creating groove 3 as shown in Figure 7) protruding laterally from the upper end of the housing (6).

Applicant respectfully disagrees.

The Office action identifies element 19 of the Von Weissenfluh et al. reference as a "tubular sleeve". This is not the case.

According to the reference Von Weissenfluh et al. , column 3, line 66 to column 4, line 6: "This ratchet exhibits on the inside along its axis a sliding hold equipped with protrusion 22 which is connected in a sliding manner with grove 21 made on one section of shaft 10 through which it passes coaxially, parallel as mentioned before to extension 17 of handle 16 and supported at its ends, free to be able to rotate, by two supports 19, 20, with one 19 located at the extremity of extension 17 itself and the other 20 located on one part of handle 16."

Thus according to the Von Weissenfluh reference element 19 is a support.

Figure 7 of the reference Von Weissenfluh et al. shows as element 19 a bent sheet of metal with a perforation hole in it, where shaft 10 passes through the perforated hole.

As a consequence there is nothing in the reference Von Weissenfluh et al, which would support the notion that element 19 is a sleeve.

Similarly, there is no support for element 19 being a sleeve in a reference dictionary:

The Websters New Universal Unabridged Dictionary, published by Barnes and Noble, Inc. 1994

Defines the term “sleeve” in its relevant sections as follows:

1. the part of a garment that covers the arm, varying in form and length but commonly tubular 3. mach. a tubular piece, as of metal fitting over a rod or the like. In conclusion, a “sleeve” is a tubular part and the element 19 of the reference Von Weissenfluh et al. is not tubular and not a sleeve.

The Office action further identifies the elements 4, 5 of the reference Von Weissenfluh et al. as a support fork. A fork in general is comprised out of a handle and tines attached to that handle. The elements 4, 5 of the reference Von Weissenfluh et al. as described in column 3, lines 8 to 18:

“This task is being accomplished by a pair of members 4, 5. FIGS. 5 – 8 of tightening device 2 of which one member 4 is shaped as a hook and exhibits flat area 4a with which it can be supported on the above mentioned reference surface of one surface 6a of casing 6 and the other member 5, in laminar form has an extremity 5a so as to be able to be engaged with above-mentioned groove 3 made on the opposing surface. These members 4, 5, once they have been engaged as said, function as pincers and make tension matrix integral with tightening device 2 either

while they are being applied in the oral cavity or while the matrix is being wound and tightened”

Thus according to the reference, Von Weissenfluh et al., the members 4, 5 function as pincers and not as tines of a fork.

In conclusion, the members 4, 5 of the von Weissenfluh et al. reference do not represent tines of a fork and such an identification is clearly erroneous.

Claim 5 as amended clearly specifies the presence of a tubular sleeve (20) and of a support fork (21) and thereby defines the present invention over the reference Von Weissenfluh et. al. with the following language: “the drive shaft (16) can be turned inside a tubular sleeve (20) with the aid of a rotary knob (19) provided at an end of the drive shaft (16) disposed remote from the drive pinion (17), from which tubular sleeve (20) a support fork (21) protrudes forward underneath the drive pinion (17) and can slide under an edge (7) protruding laterally from the upper end of the housing (5).

The Office Action refers to *Claim Rejections - 35 USC § 103*

Claims 2,4, and 7 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Von Weissenfluh et al. Von Weissenfluh et al discloses that there is a toothed wheel at the upper end of spindle (7) being fitted with a separate crown wheel (8b) which can be brought into engagement with a drive pinion (9) belonging to the drive device (2), which drive pinion (9) can be turned via a laterally outward extended drive shaft (10). However, Von Weissenfluh et al does not teach that the toothed wheel being a crown wheel. It would have been obvious to one having ordinary skill in

the art at the time the Invention was made to make the toothed wheel integral with the crown wheel, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Works*, 150 U.S. 164 (1893).

Applicant respectfully submits that the present invention is clearly not a construction where two constructions of the reference Von Weissenfluh et al. are now a single construction of the applicant.

The reference Von Weissenfluh et al. teaches in column 4:

Lines 18-19 “conical toothed pinion 9 is fitted on shaft 10”

Line 24 “Conical toothed wheel 8a meshes with pinion 9”.

Line 25 “toothed crown 8b meshes with”

Line 26 “toothed wheel 7c”.

The present application discloses on page 8, lines 3 and 4:

“the drive pinion 17 coming into engagement with the crown wheel 13.”.

What are the possibilities of obtaining the present invention construction “drive pinion 17 engaging crown wheel 13” by uniting the member 8 of the Von Weissenfloh et al. reference with the shaft 10 or with the pin 7? There are no possibilities of such unions of the member 8, since

the reference von Weissenfeld does not teach a drive pinion engaging a crown wheel. The reference Von Weissenfluh et al. gives instead two different junctions : “Conical toothed wheel 8a meshes with conical toothed pinion 9 “ and ” toothed crown 8b meshes with toothed wheel 7c”.

Thus two-in-one construction applied to the von Weissenfluh et al. reference will not meet the requirements of the claim language of claim 2 ; “a crown wheel (13) which can be brought into proximate engagement with a drive pinion (17)”.

As to claim 4, Von Weissenfluh et al shows in figure 7 that the drive pinion (9) is slightly beveled at its front face.

Applicant respectfully disagrees.

Only the drive pinion (17) of the present application is “slightly beveled at its front face” as shown in Figure 5. New claim 15 says: “the drive pinion (17) is slightly conically beveled at its front face. such that the drive pinion (17) is better guidable into engagement with the crown wheel (13).”.

In clear contrast to the “slight bevel at the front face” according to applicant’s claims, the reference Von Weissenfloh et al. teaches in column 4, line 19 a fully “conical toothed piston 9”.

According to the reference Von Weissenfluh et al., column 4, line 24: “Conical toothed wheel 8a meshes with pinion 9”.. When a “Conical toothed

wheel 8a meshes with pinion 9”, the pinion 9 cannot only have “a slight bevel at the front face” but must be a full conical toothed pinion 9 in contradiction to the allegation of the Office Action regarding to claim 4.

Claim 7 requires the following configuration: “wherein the drive pinion (17) can be engaged and disengaged with a crown wheel (13) of the inner body (9), and wherein the crown wheel (13) of the inner body (9) upwardly protrudes from the housing (5) of the matrix holder (3).”

This structure clearly differs from the teaching of the Von Weissenfluh et al. reference.

The Von Weissenfloh et al. reference does not teach a crown wheel engaged by a toothed drive pinion (17). Furthermore, the reference Von Weissenfluh et al. fails to teach that crown wheel (13) of the inner body (9) upwardly protrudes from the housing (5) of the matrix holder (3).

Incidentally, the dental matrix tensioner of the reference Von Weissenfluh et al. is very complicated and cumbersome with regard to its construction, assembly and handling that there is left very little of what a person of ordinary skill in the art would look for.

The many small individual parts, which are to be moved, engaged and again disengaged, render a production of the dental matrix tensioner of the Von Weissenfluh et al. reference difficult and expensive, the handling cumbersome and unreliable. In order to accomplish a somewhat reliable functioning, the many individual parts have to be built with high precision and have to be exactly assembled, which again influences the production costs. In addition these individual parts are endangered by breakage based on the many motions which have to be performed, and a single damaged part interferes with the functioning of the complete device.

The decisive advantage of the subject matter of the present invention comprises its simple construction of only a few moving parts, a simple handling and the functional reliability. Based on the simple construction and the simple operation of the invention device there are hardly any interferences. The subject matter of the present invention is new, unobvious, there is a clear technical advance. The present invention was not suggested by the state of the art as represented by the reference Von Weissenfluh et al., instead a substantial inventive effort was required to obtain the solution according to the present application for eliminating existing problems and difficulties. The simplicity of the present solution is in particular an indication for substantive nonobviousness.

The Office Action refers to Allowable Subject Matter.

Claim 6 stands objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant has amended claim 6 by incorporating the language from claim 1 and believe that claim 6 is now fully allowable.

Reconsideration of all outstanding rejections is respectfully requested.

All claims are deemed to be in form for allowance and an early Notice of Allowance is earnestly solicited.

Respectfully submitted,

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